Q.1) Attempt any three   **15 marks**

a) Using the supply function $S = P^2 + P + 1$, find the supply when the price is 15.

   Also find the price when supply is 21.

b) from the given example, find the total revenue function and the total profit

   function. Also find the profit at the given point.

   Total cost function $C = 30 - 2x^2$.

   The demand function is $P = 5 - 2x$

   Find profit at x = 100

c) If MR = 40, AR = 60, find price elasticity of demand.

Q.2) Attempt any three   **15 marks**

a) if rs 5000 amounts to rs 6200 at s.i. in 4 years, find the rate of interest.

b) Find the principal, if the compound interest payable annually at 12% per

   annum for 2 years is rs 2544.

c) Find the amount of an annuity of rs 6000, payable at the end of each

   quarter for 2 years, the interest rate being 8%, compounded quarterly.

d) A person borrowed rs 75,000, at 12% p.a. if he wishes to return the sum

   within 1 year, find his EMI using (1) Interest on reducing balance

                  (2) Flat Interest rate

Q.3) Attempt any three   **15 marks**

a) Calculate the coefficient of correlation between the price and supply

   from the following data, and comment

Price(rs/unit)	5	4	3	6	2	10
Supply (in 1000)	8	6	4	9	3	10

b) using spearmen's formula, find the rank correlation coefficient

                                              the given data:

R1	1	3	4	5	2	6	8	7
R2	2	3	6	8	1	7	5	4

c) Two regression equation are given in the following example

   (i) Identify the regression lines and state the coefficient of

     Regression.

   (ii) Find the coefficient of correlation

d) from the given bivariate data , find (i) the coefficient of regression

   (ii) the coefficient of correlation

   (iii) the equation of the line of regressions

X	2	6	8	10
Y	4	3	5	6

Q.4) Attempt any three   15 marks

   a) The following are the cost of living index numbers. Find out the

     trend values assuming five yearly cycle.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
Cost of living Index	100	110	120	150	125	120	118	110	140

   b) Calculate trend values by the method of least squares from the data given below

     and estimate the sales for 2007.

Year	2002	2003	2004	2005	2006
Sales in lakhs	70	74	80	86	90

   c) Given that the Laspeyre's price index number is equal to paasche's price index

     number are 145.21 and 148.37 respectively, Find the Paasche's price index number.

   d) The average monthly income of workers in a factory were rs 5000 in February 2007

     and rs 5800 in March 2007. If the cost of living index number increased from 120 to

     135. Find the percentage increase or decrease in real income over the same period

Q.5) Attempt any three   15 marks

   a) An unbiased coin is tossed 4 times. Find the probability of getting (i) no head ,

   (ii) exactly 2 heads , (iii) at most 2 head.

   b) Find n and p for a binomial distribution if mean = 6 and s.d.= 2.

   c) The first and third quartiles of a normal distribution are 90 and 126 respectively.

     Find mean and standard deviation.

   d) The quartile deviation of a normal distribution is 10. Its first quartile is 70 .

     find mean, standard deviation and upper quartile.